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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,908	11/13/2003	Anton Nekovar	32860-000660/US	7317

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EXAMINER
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HO, ALLEN C

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 06/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/705,908

Applicant(s)

NEKOVAR, ANTON

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a readout without a desired signal including image information is not performed before an exposure of the CCD camera when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 25 recites "a readout without a desired signal including image information is not performed before an exposure of the CCD camera when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place". The claimed subject matter is contrary to what is disclosed in the specification. The specification describes that a readout (15, 28) without a desired signal including image information is performed before an exposure of the CCD camera when an external trigger pulse (16) occurs at a point in time at which a readout of the CCD camera is to take place (paragraphs [0021]-[0023]).

4. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 25 recites "a readout without a desired signal including image information is not performed before an exposure of the CCD camera when an external trigger pulse occurs at a

point in time at which a readout of the CCD camera is to take place", which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 6, and 17-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1).

With regard to claim 1, Tamura *et al.* disclosed a diagnostic system (Fig. 21), comprising: a CCD camera (5004; paragraph [0013]); a device (x-ray radiation switch) for generating external trigger pulses (paragraph [0012]); and a system control (5002) configured to: (1) control, in the absence of x-radiation, a readout of the CCD camera without a desired signal including image information at regular time intervals (paragraph [0037]); (2) control, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, triggering of a readout of the CCD camera without a desired signal including image information and subsequently triggering an exposure of the CCD camera (paragraphs [0037], [0038], and [0044]); and (3) suppress (interrupt) a readout without a desired signal including

image information before an exposure of the CCD camera when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place (paragraph [0045]).

With regard to claim 2, Tamura *et al.* disclosed the diagnostic system as claimed in claim 1, wherein, when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place, the diagnostic system is immediately triggered for the emission of x-radiation and the useful signal is subsequently read out (paragraphs [0038]-[0045]).

With regard to claim 3, Tamura *et al.* disclosed the diagnostic system as claimed in claim 1, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, a readout without a useful signal is initially carried out and then the diagnostic system is subsequently triggered for the emission of x-radiation via an x-ray emitter (paragraphs [0038]-[0044]).

With regard to claim 6, Tamura *et al.* disclosed the diagnostic system as claimed in claim 2, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, a readout without a useful signal is initially carried out and then the diagnostic system is subsequently triggered for the emission of x-radiation via an x-ray emitter (paragraphs [0038]- [0044]).

With regard to claim 17, Tamura *et al.* disclosed a diagnostic system, comprising: a CCD camera (5004); means (x-ray radiation switch) for generating an external trigger pulse; and means (5002) for providing a readout of the CCD camera without a desired signal including image information before an exposure of the CCD camera when an external trigger pulse is generated at a time when no readout of the CCD is to take place (paragraphs [0037]-[0044]); and means (5002) for suppressing (interrupting) a readout without a desired signal including image

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information before an exposure of the CCD camera when an external trigger pulse is generated at a time when a readout of the CCD camera is to take place (paragraph [0045]).

With regard to claim 18, Tamura *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the means for providing is configured to read the CCD camera without a useful signal at a regular time intervals in the absence of x-radiation (paragraph [0037]).

With regard to claim 19, Tamura *et al.* disclosed the diagnostic system as claimed in claim 17, wherein, when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place, the x-ray diagnostic system is immediately triggered for the emission of x-radiation and the useful signal is subsequently read out (paragraph [0038]).

With regard to claim 20, Tamura *et al.* disclosed the diagnostic system as claimed in claim 17, wherein, when an external trigger pulse occurs at a point in time at which no readout of the CCD camera is to take place, a readout without a useful signal is initially carried out and then the diagnostic system is subsequently triggered for the emission of x-radiation via an x-ray emitter (paragraphs [0037]-[0044]).

With regard to claim 21, Tamura *et al.* disclosed the diagnostic system as claimed in claim 1, wherein the external trigger pulses are generated in a non-predetermined fashion (when x-ray radiation switch is pressed).

With regard to claim 22, Tamura *et al.* disclosed the diagnostic system as claimed in claim 1, wherein the external trigger pulses are generated in a non-periodic fashion (when x-ray radiation switch is pressed).

With regard to claim 23, Tamura *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the external trigger pulses are generated in a non-predetermined fashion (when x-ray radiation switch is pressed).

With regard to claim 24, Tamura *et al.* disclosed the diagnostic system as claimed in claim 17, wherein the external trigger pulses are generated in a non-periodic fashion (when x-ray radiation switch is pressed).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) as applied to claims 1-3 and 6 above, and further in view of Haaker *et al.* (U. S. Patent No. 5,117,446).

With regard to claims 4 and 7-9, Tamura *et al.* disclosed the diagnostic system as claimed in claims 1-3 and 6. However, Tamura *et al.* failed to teach that the device for generating external trigger pulses is an ECG electrode.

Haaker *et al.* disclosed a diagnostic system comprising an ECG electrode (26) for generating external trigger pulses. Haaker *et al.* taught that the same cardiac phase could be repeatedly imaged by synchronizing the x-ray pulses with an ECG signal (column 3, lines 30-39).



It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ an ECG for generating external trigger pulses, since a person would be motivated to examine a particular cardiac phase by synchronizing x-ray pulses with an ECG signal.

9. Claims 5, 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) as applied to claims 1-3 and 6 above, and further in view of Watanabe *et al.* (U. S. Patent No. 6,412,978 B1) and Casey *et al.* (U. S. Patent No. 5,175,754).

With regard to claims 5, 10, 11, and 13, Tamura *et al.* disclosed the diagnostic system as claimed in claims 1-3 and 6. However, Tamura *et al.* failed to teach that the device for generating external trigger pulses is an angle sensor mounted at a C-arm of the diagnostic system.

Watanabe *et al.* disclosed a diagnostic system that comprises a C-arm and an angle sensor (81) mounted at the C-arm.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to mount the diagnostic system disclosed by Tamura *et al.* on the C-arm disclosed by Watanabe *et al.*, since a person would be motivated to image a patient from different imaging angles.

Casey *et al.* disclosed a diagnostic system that comprises a device (36) for generating external trigger pulses (42), which triggers an x-ray controller (30) and a data acquisition system (34). Casey *et al.* taught that this device could be programmed to generate a trigger pulses that

are a function of signal pulses of an angle sensor (40), which provides imaging flexibility (column 3, line 41 column 4, line 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a device disclosed by Casey *et al.* for generating trigger pulses, since a person would be motivated to control the frequency of a triggering pulse.

10. Claims 12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura *et al.* (U. S. Pub. No. 2002/0186813 A1) and Haaker *et al.* (U. S. Patent No. 5,117,446) as applied to claims 4 and 7-9 above, and further in view of Watanabe *et al.* (U. S. Patent No. 6,412,978 B1) and Casey *et al.* (U. S. Patent No. 5,175,754).

With regard to claims 12 and 14-16, Tamura *et al.* and Haaker *et al.* disclosed the diagnostic system as claimed in claims 4 and 7-9. However, Tamura *et al.* and Haaker *et al.* failed to teach that the device for generating external trigger pulses is an angle sensor mounted at a C-arm of the diagnostic system.

Watanabe *et al.* disclosed a diagnostic system that comprises a C-arm and an angle sensor (81) mounted at the C-arm.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to mount the diagnostic system disclosed by Tamura *et al.* on the C-arm disclosed by Watanabe *et al.*, since a person would be motivated to image a patient from different imaging angles.

Casey *et al.* disclosed a diagnostic system that comprises a device (36) for generating external trigger pulses (42), which triggers an x-ray controller (30) and a data acquisition system (34). Casey *et al.* taught that this device could be programmed to generate a trigger pulses that

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are a function of signal pulses of an angle sensor (40), which provides imaging flexibility (column 3, line 41 column 4, line 2).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a device disclosed by Casey *et al.* for generating trigger pulses, since a person would be motivated to control the frequency of a triggering pulse.

### ***Response to Arguments***

11. Applicant's arguments filed 08 June 2006 with respect to claims 2, 3, 6, 17, 19, and 20 have been fully considered and are persuasive. The objections of claims 2, 3, 6, 17, 19, and 20 have been withdrawn.

12. Applicant's arguments filed 08 June 2006 with respect to claims 5 and 10-16 have been fully considered and are persuasive. The rejection of claims 5 and 10-16 under 35 U.S.C. 112, second paragraph, has been withdrawn.

13. Applicant's arguments filed 08 June 2006 have been fully considered but they are not persuasive.

The applicant argues that Tamura *et al.* failed to disclose a system control, configured to control, when an external trigger pulse occurs at a point in time at which a readout of the CCD camera is to take place, a readout without a desired signal including image information is suppressed before an exposure of the CCD camera. Specifically, the applicant argues that the initialization process disclosed by Tamura *et al.* is not suppressed because it is interrupted and restarted from the beginning. The examiner respectfully disagrees with this argument. First, the examiner would like to point out that the initialization process, during which the external trigger

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pulse occurs, is indeed suppressed (interrupted). Subsequently, a new initialization process, different from the suppressed initialization process, begins from the beginning. Second, applicant's argument is not directed to the claim language. It really does not matter whether the initialization process is restarted or not, since the claim language only requires that a readout without a desired signal including image information is suppressed by an external trigger pulse. An interrupted initialization process reads on the claims.

Therefore, the rejections are being maintained.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Allen C. Ho, Ph.D.  
Primary Examiner  
Art Unit 2882

15 June 2006